

FIG. 1 is a block diagram of a network system 10. The network system 10 includes a network 14, a multilayer network element 12, a router 24, and a bridge 26. The network 14 is connected to the multilayer network element 12 and the router 24. The multilayer network element 12 is connected to the router 24 and a group of devices 18. The bridge 26 is connected to the network 14 and a group of devices 18. The router 24 is connected to a group of devices 16. The network system 10 is shown in FIG. 1.

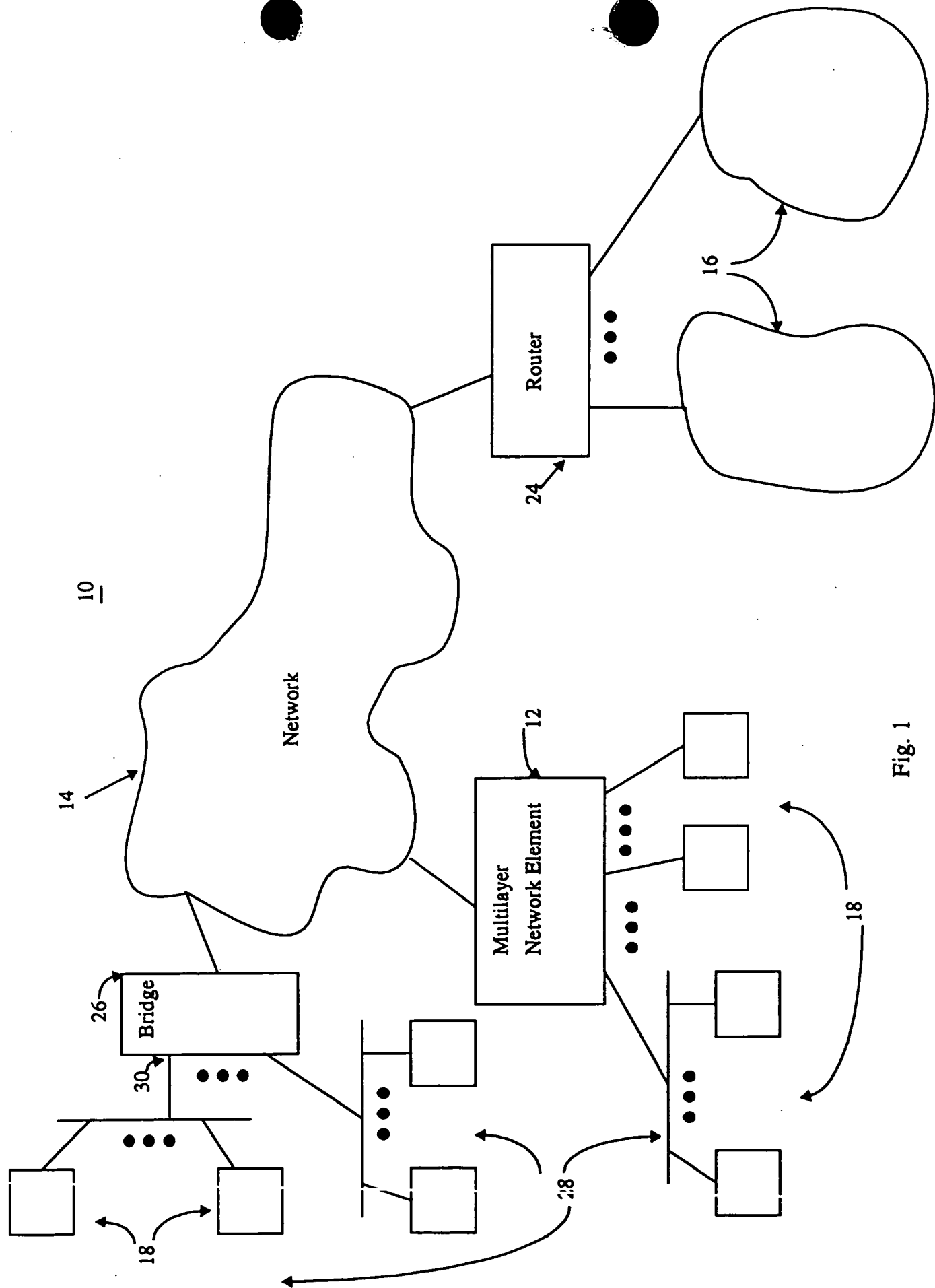


Fig. 1

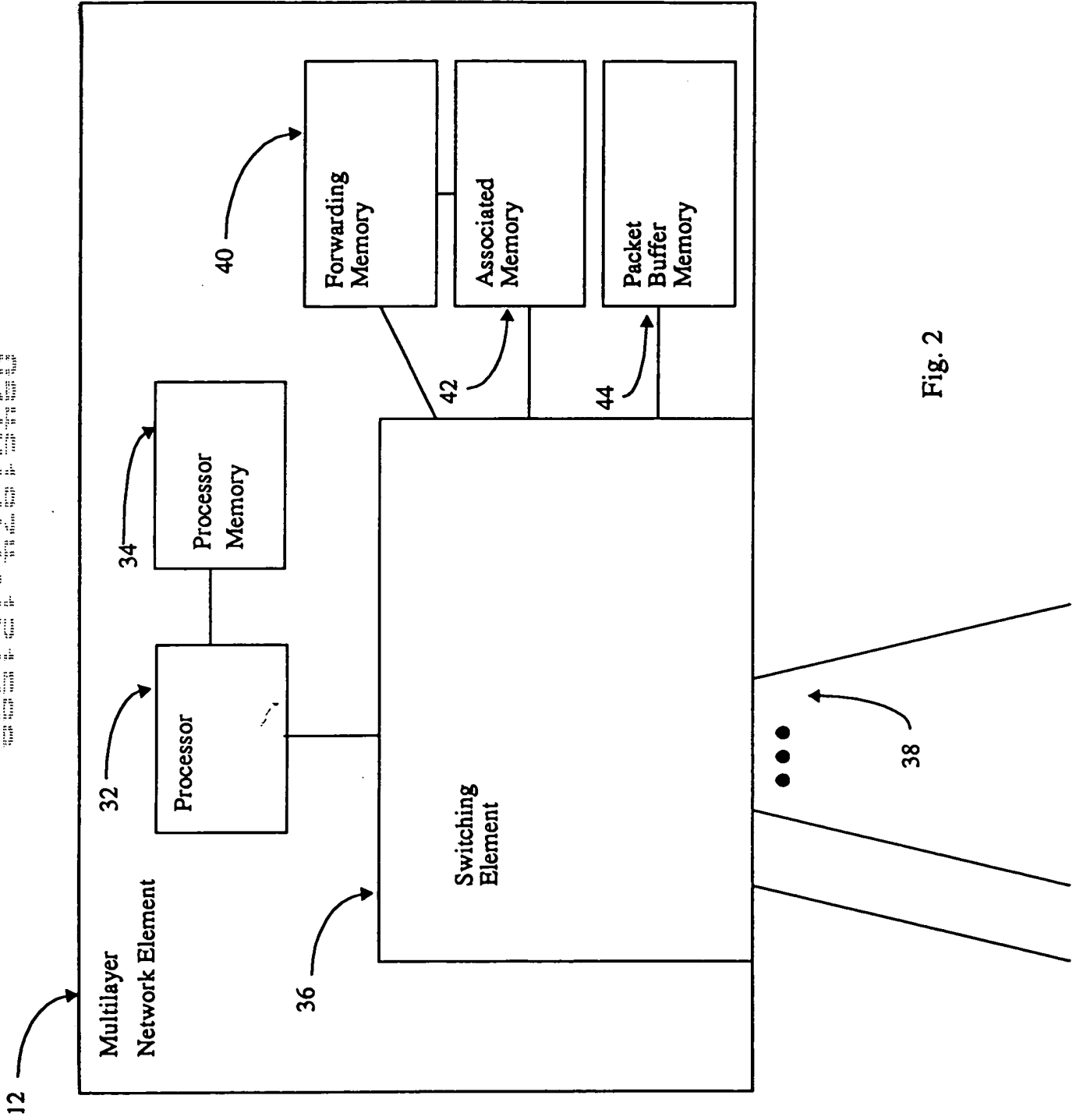


Fig. 2

FIG. 3 is a block diagram of a network device 30, such as a switch or router, according to one embodiment of the present invention. The network device 30 includes a processor 32, a forwarding memory 40, an associated memory 42, an input port 50, an output port 56, and a packet memory manager 54. The network device 30 is configured to receive packets from an external network 38 via the input port 50, process the packets, and forward the packets to an external network 38 via the output port 56. The processor 32 is connected to the forwarding memory 40 and the associated memory 42. The forwarding memory 40 is connected to the input port 50 and the output port 56. The associated memory 42 is connected to the input port 50 and the output port 56. The input port 50 is connected to the packet memory manager 54. The output port 56 is connected to the packet memory manager 54. The packet memory manager 54 is connected to the forwarding memory 40 and the associated memory 42. The network device 30 is configured to receive packets from an external network 38 via the input port 50, process the packets, and forward the packets to an external network 38 via the output port 56.

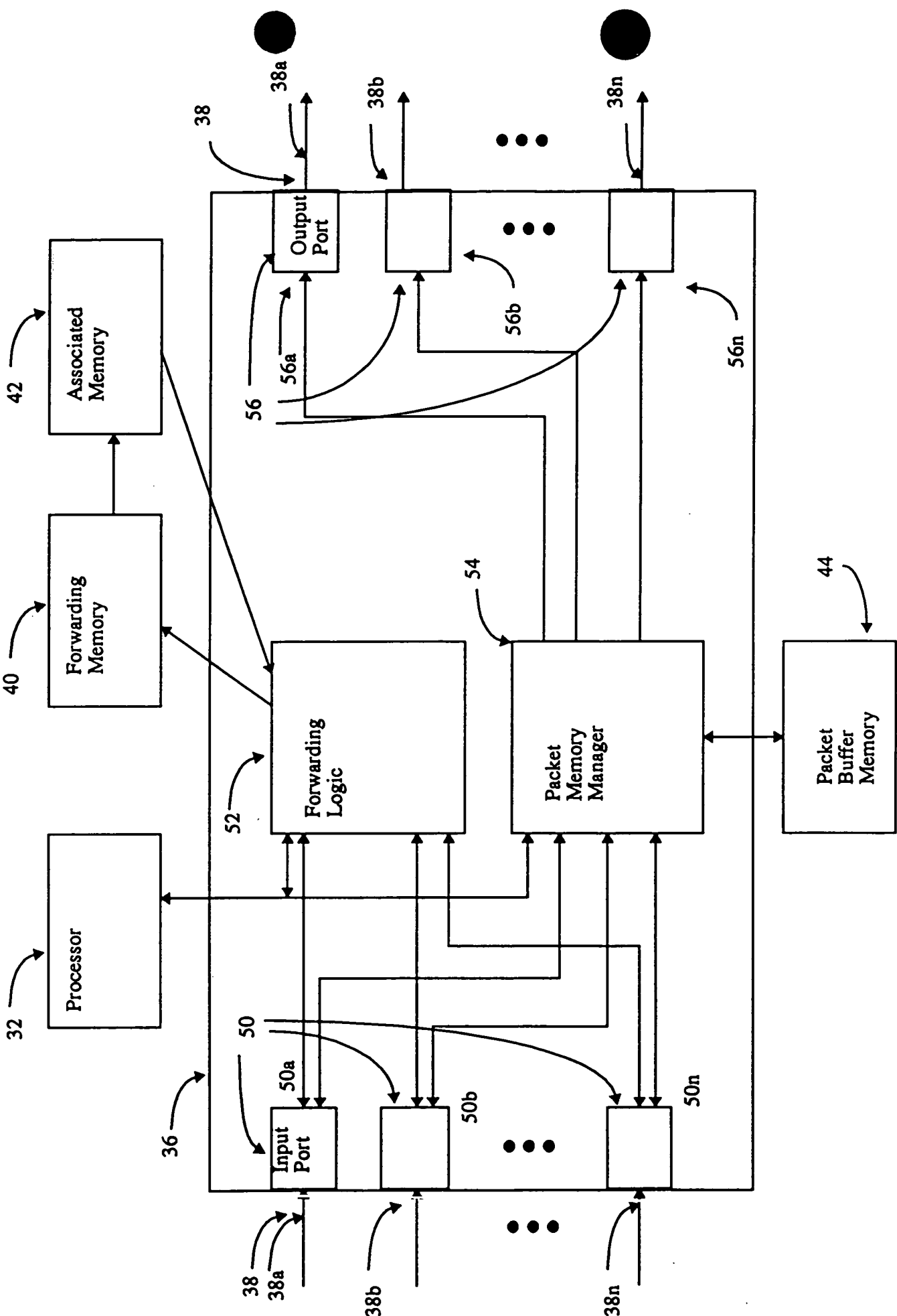
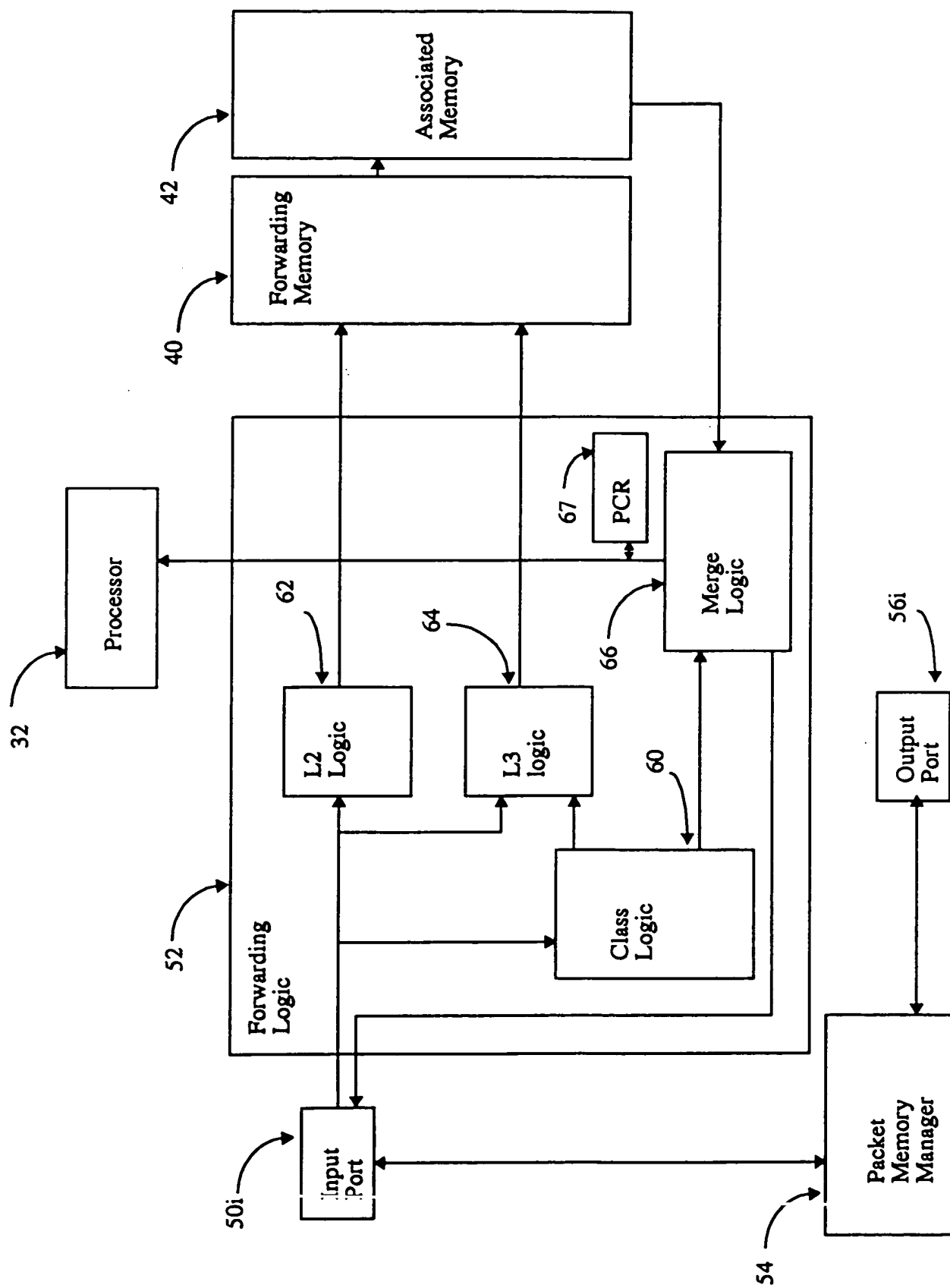


Fig. 3



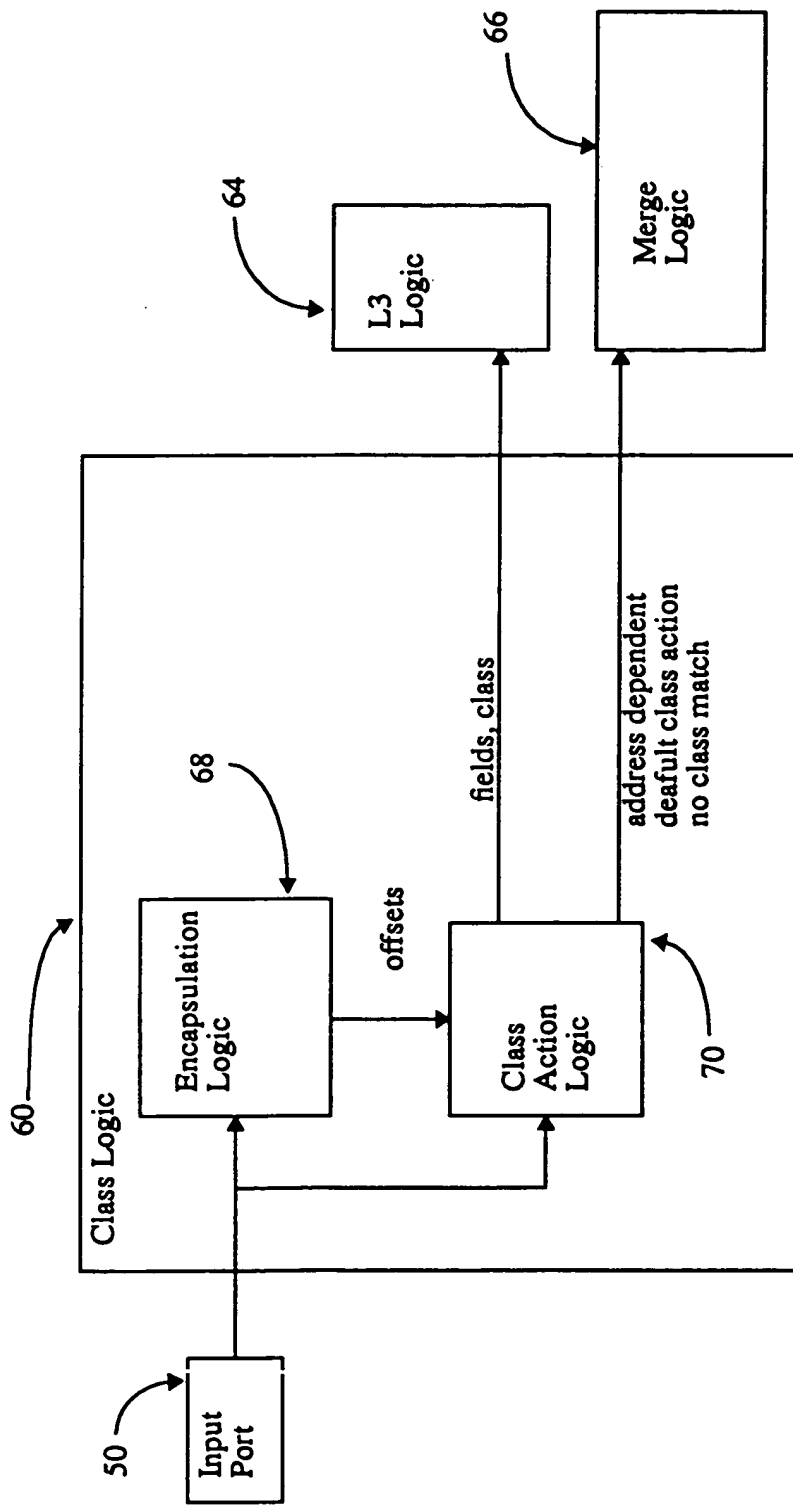


Fig. 5

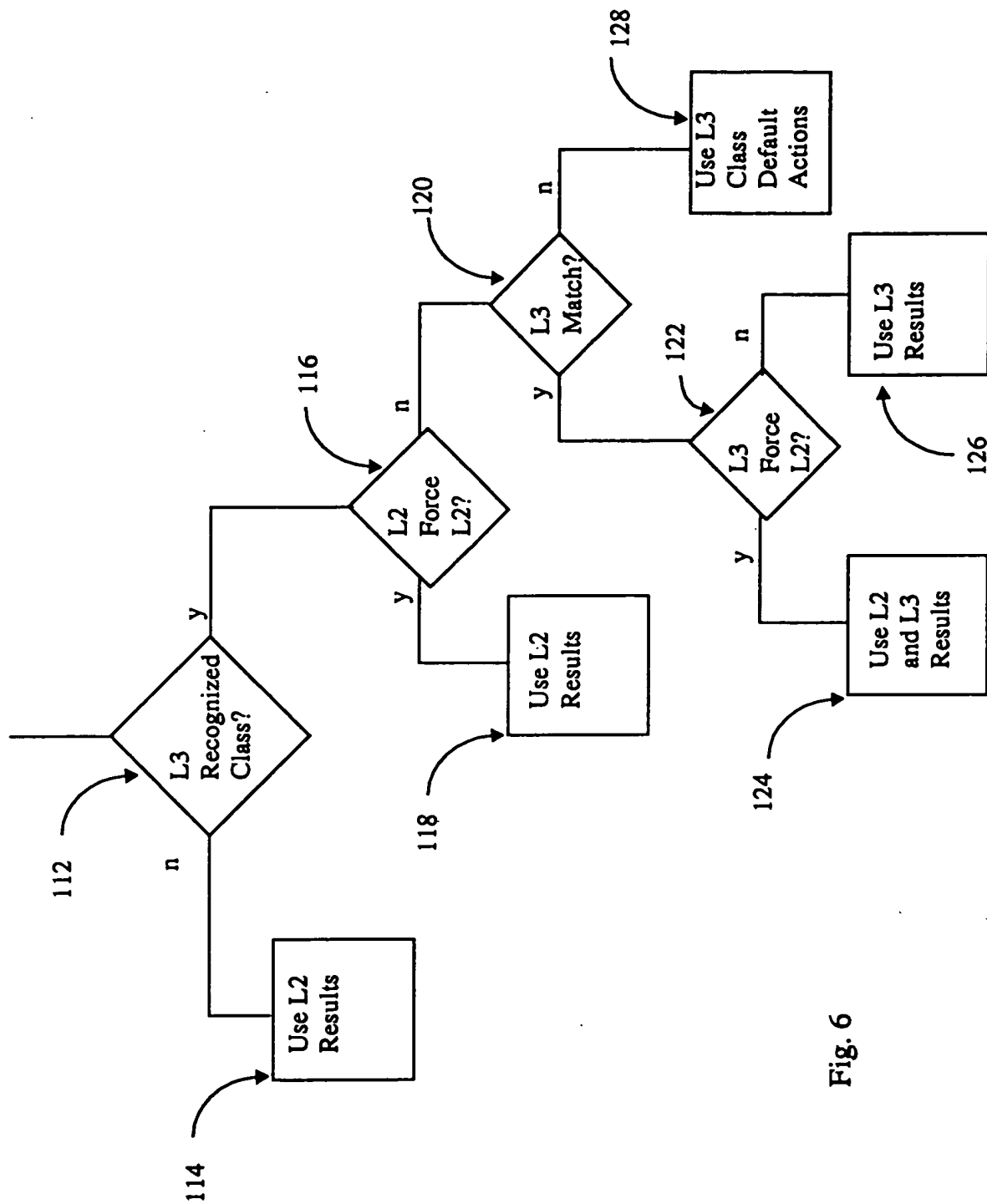


Fig. 6

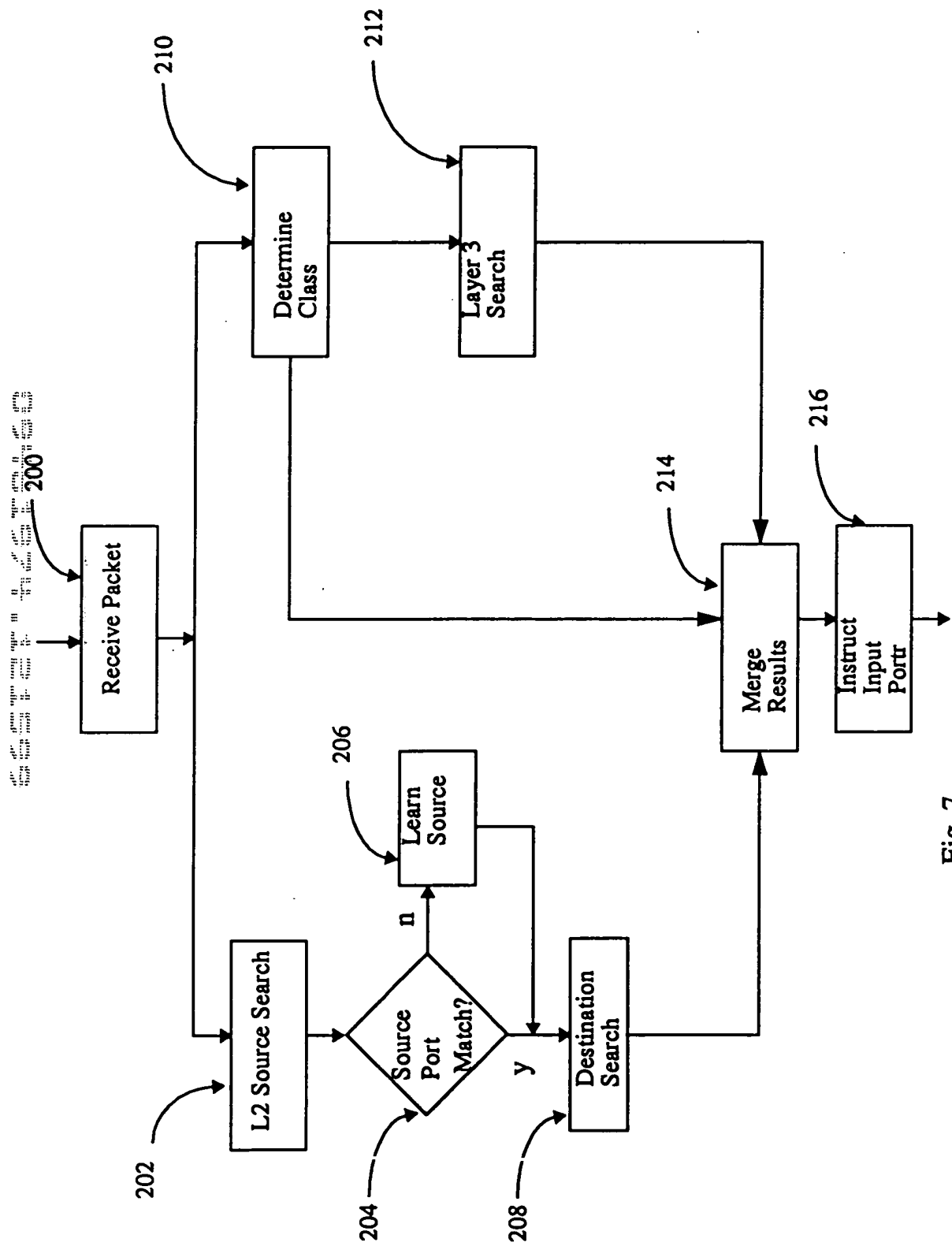


Fig. 7

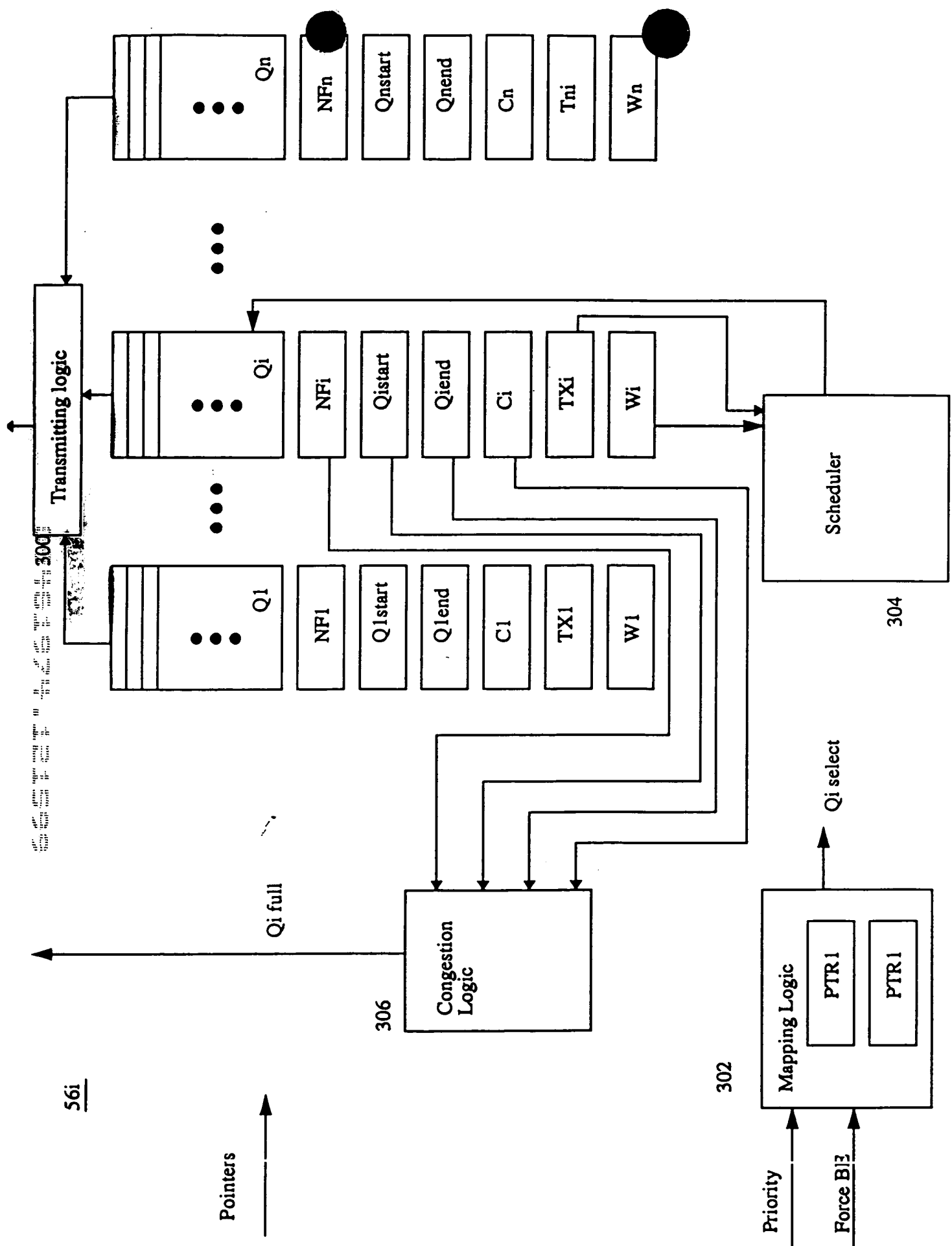


Fig. 8